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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,576	05/17/2006	Herbert Spindler	97469	5668
24628 7590 07/07/2010 Husch Blackwell Sanders, LLP Husch Blackwell Sanders LLP Welsh & Katz 120 S RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606				
EXAMINER				
SMITH, JENNIFER A				
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1793				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/579,576

**Applicant(s)**

SPINDLER ET AL.

**Examiner**

JENNIFER A. SMITH

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 28 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-20 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Status of Application***

Claims 1-11 remain cancelled.

Claims 19-20 remain withdrawn from consideration.

Claims 12, 15, and 17 have been amended.

Claims 12-18 are presented for examination.

***Withdrawal of Claim Rejections - 35 USC § 112, 2<sup>nd</sup> Paragraph***

The rejection of claims 12, 15, and 17 under 35 U.S.C. 112, second paragraph, is withdrawn in view of Applicants' amendments to the claims.

***Claim Objections***

Claim 17 is objected to because of the following informalities: The claim contains minor grammar mistakes. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**The rejection of claims 12-18 under 35 U.S.C. 103(a) as being unpatentable over Woodruff (US Patent No. 6,464,875) in view of Rickard (US Patent No. 4,076,515), as generally set forth in the Office Action dated 03/30/2010, stands.**

In regard to claim 12, the Woodruff reference is drawn to a system for converting waste materials into useful bio-gas and fertilizer, and/or soil amendment product, illustrated in Figure 1 [See Abstract]. The method includes sending wastes to an anaerobic treatment unit/digester (20). A conditioner for enhancing anaerobic digestion is not essential [See Column 4, lines 61-62]. The anaerobic treatment can be operated in the thermophilic temperature range (49-60°C) [See Column 5, lines 41-44]. Bio-gas is generated during anaerobic treatment. Bio-gas is made up of methane, carbon dioxide, and ammonia [See Column 5, lines 27-34]. The bio-gas produced during the anaerobic digestion stage can be collected and used for energy recovery, or stored for later use in a gas storage tank (5). Figure 2 further demonstrates the anaerobic treatment unit. Each tank is completely gas-sealed with a bio-gas vent (23) and a bio-gas recirculation line (25F) [See Column 15, lines 27-30]. Ammonia vapor can be fed to an ammonia scrubber column (72). The ammonia vapor is contacted with an absorbent agent and condensed into a liquid form which is collected [See Column 6, line 56 – Column 7, line 22].

The Woodruff reference fails to teach the claimed pressure ranges.

The Rickard reference discloses a method for extracting nitrogen fertilizer from organic waste water, for sanitizing the waste and reducing emissions by thermal treatment of the waste water at a pressure below atmospheric pressure (33 to 94 kPa)

and at temperatures ranging from 40 to 90°C [See Abstract; claim 1; Column 3, lines 31-36; Column 6, lines 35 and 36].

One of ordinary skill in the art, at the time of Applicants invention, would have been motivated to operate under low pressure conditions because the object of reducing the pressure within the reactor and elevating the temperature of the reaction product is to cause the ammonia gas in the solution to become insoluble [See Rickard, Column 6, lines 30-35]

In regard to claim 13, the Woodruff reference discloses, in Figure 2, a biogas recirculation pump (25F) fed back into the waste treatment reactor (22), thereby conducting the carbon dioxide containing biogas through the waste product to be treated

In regard to claim 14, differences in temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such a temperature is critical. Rickard shows in Figure 2, the emitted gas is cooled (see column 6, lines 2-5; column 7, line 64 to column 8, line 8) in condenser (62) and is then introduced into a separate reactor (74) and comes into contact with an aqueous absorption agent (see column 5, lines 2-7).

In regard to claim 15, biogases, with the composition disclosed in Table 3-4, produced in Woodruff's reference are fed to a storage tank (5). Woodruff is not explicit to the uses of the gaseous composition but notes byproducts from various sources can be blended to provide a more consistent feed to the anaerobic treatment unit [See Column 5, lines 7-9]. It would be within the level of one of ordinary skill in the art to provide additional carbon dioxide into a closed loop process like that taught by Woodruff as a way to reduce greenhouse gas emissions.

In regard to claim 16, the Woodruff reference teaches the use of waste from animal product and by-product processing plant [See Column 1, lines 9-12]. One of skill in the art would recognize a number of possible waste sources. Manures are common waste sources for fertilizer production processes. The waste mater can be introduced into an equalization tank (10) to pre-treat the product [See Column 4, lines 58-60].

In regard to claim 17, Rickard shows in Figure 1, the digested sludge (18) is dewatered further by a vacuum filter process (20). The supernatant and a portion of the filtered sludge are directed into the reactor (24) [See Column 4, lines 42-48]. The output liquids emerging from my process are essentially odor-free and have a relatively low nitrogen concentration. One of skill in the art would have been motivated to subject the waste material to this step because the output materials may be returned to the wastewater treatment operations without adverse effect on these processes [See Column 3, lines 54-60]. The sludge solids which remain after filtration may be disposed

of by incineration, land filling, composting or drying for sale as a soil conditioner [See Column 1, lines 43-45].

In regard to claim 18, the Woodruff reference teaches ion exchange as an alternative ammonium recovery process. This can be used to remove and recover the ammonia instead of the air/steam stripper (50) and scrubber column (70) in Figure 1. In this process, an ammonia ion specific resin is used to remove ammonia from a water stream (i.e., through adsorption) as it is passed through the ion exchange column. The ion exchange column is then back washed with a sulfuric acid solution to recover the ammonia from the resin. This solution is then further processed to produce either an ammonium sulfate fertilizer solution or a solids ammonium sulfate product (purified ammonium sulfate crystals). Either of these products can be used as a direct fertilizer product or as an ingredient in fertilizer materials [See Column 7, line 60 – Column 8, line 11].

### ***Response to Arguments***

Applicant's arguments filed 05/28/2010 have been fully considered but they are not persuasive.

Applicants argue against the combination of the Woodruff and Rickard references. The Woodruff reference suggests a conditioner, which might include acids or alkalis [See Column 4, line 64]. However, the process is also taught to be workable without a conditioner. A conditioner for enhancing anaerobic digestion is not essential

[See Column 4, lines 61-62]. Applicants arguments directed to Woodruff's teachings of anaerobic digestion and mesophilic and thermophilic temperatures are not persuasive for these same reasons.

Applicants argue that the anaerobic treatment unit/digester (20) of the Woodruff reference cannot be compared to the present invention's first vessel. Woodruff notes the conditioning step is not essential [See Column 5, lines 1-12] and bacteria, fats, oils, etc, which may be present in the waste material work to generate bio-gas which contains carbon dioxide and ammonia [See Column 5, lines 27-34]. Applicants' arguments that the Woodruff reference only teaches ammonia as less than 1% of the gases produced are not persuasive because Applicants do not claim the amount of ammonia released from the first vessel. Applicants' arguments that other gases not required by claim 12 are liberated in the Woodruff reference are not persuasive for this same reason.

Applicants argue the Woodruff reference teaches an ammonia stripper in order to liberate ammonia from the liquid effluent. This argument is not found persuasive because Woodruff teaches the creation of ammonia gas in the first reaction stage [See Column 5, line 32]. The ammonia vapor AV from the ammonia stripper can be combined with the bio-gas BG, GV generated during any part of the process, such as the digestion stage and centrifuging stage, to recover energy [See Column 6, lines 47-49].



Applicants argue the liberation of ammonia in the Woodruff reference requires the addition of alkali in order to increase the pH value. This argument is not found persuasive. In the process, the waste material is treated first in the digestion unit without the addition of alkalis. A conditioner for enhancing anaerobic digestion is not essential [See Column 4, lines 61-62].

### ***Conclusion***

Claims 12-18 remain rejected.

No claims are allowed.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. SMITH whose telephone number is

(571)270-3599. The examiner can normally be reached on Monday - Thursday, 9:30am to 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.A. LORENZO/  
Supervisory Patent Examiner, Art Unit 1793

Jennifer A. Smith  
June 23, 2010  
Art Unit 1793